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Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

In the Matter of )

Local Exchange Carriers' Rates, )  
Terms, and Conditions for Expanded )  
Interconnection Through Virtual )  
Collocation for Special Access )  
and Switched Transport )

CC Docket No. 94-97,  
Phase II

**BELL ATLANTIC'S DIRECT CASE**

Bell Atlantic<sup>1</sup> hereby submits its Direct Case justifying those rates, terms and conditions in its virtual collocation tariff that were designated for investigation in Phase II of this proceeding.<sup>2</sup>

Respectfully Submitted,

**The Bell Atlantic Telephone  
Companies**

By their Attorney



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October 19, 1995

<sup>1</sup> The Bell Atlantic telephone companies ("Bell Atlantic") are Bell Atlantic-Delaware, Inc.; Bell Atlantic-Maryland, Inc.; Bell Atlantic-New Jersey, Inc.; Bell Atlantic-Pennsylvania, Inc.; Bell Atlantic-Virginia, Inc.; Bell Atlantic-Washington, D.C., Inc.; and Bell Atlantic-West Virginia, Inc.

<sup>2</sup> *Order Designating Issues for Investigation*, DA 95-2001 (rel. Sept. 19, 1995).

## ATTACHMENT

### Responses To Information Requests

#### **Information Requirement: Charges for Installation of Interconnector-Designated Equipment**

*(a) Identify the components of the installation costs recovered by these nonrecurring charges. The LECs must state whether the costs of equipment installation vary depending on the type of equipment designated by the interconnector.*

The Equipment Installation and Engineering Fee recovers the costs incurred by Bell Atlantic when a vendor installs collocator-designated equipment on behalf of Bell Atlantic. The specific components of the installation costs, *e.g.*, installation, engineering, and testing, reflect estimates provided by those vendors.<sup>1</sup> The cost breakdown was included with Transmittal No. 692 and is resubmitted as Exhibit 1.

The cost estimates vary by equipment vendor but Bell Atlantic weighted the estimates to determine an average non-vendor-specific installation cost. The initial Installation and Engineering Fee was based on the costs of installing OC-12 equipment because collocators indicated they would primarily be deploying such equipment. Bell Atlantic has subsequently expanded its Installation and Engineering fee structure with separate prices for OC-3, OC-12, and OC-48 equipment. This more accurately reflects the costs that are incurred for the equipment that collocators are actually deploying. Although the new charge is equipment-size-specific, it remains vendor-neutral.

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<sup>1</sup> The percentage of labor-related installation costs is 97%. The remaining costs are attributed to the expense of shipping the equipment to the central office. The labor and shipping costs are incurred by contractors and passed on to Bell Atlantic.

***(b) Describe the components of the equipment installation costs recovered in rates for comparable DS1 and DS3 services. To the extent that these LECs' recovery of equipment installation costs differs from their recovery of the costs of installing interconnector-designated equipment, LECs must explain any differences.***

The installation costs for comparable DS1 and DS3 services are capitalized along with the equipment investment and recovered on a recurring basis. Those installation costs are calculated by applying an engineer, furnish, and install ("EF&I") factor to the material investment to determine the installed investment.<sup>2</sup> The application of capital cost factors to the installed investment calculates costs on a recurring basis that include installation expenses.

Bell Atlantic has no investment in collocator-designated equipment. Therefore a similar method of recovery through an EF&I factor is not possible, because the capital cost factors are not used in the calculation of the expenses associated with maintaining collocation equipment. Bell Atlantic separately identified the actual costs of installing the equipment.<sup>3</sup> In addition, unlike equipment that is available for use and re-use for multiple Bell Atlantic customers, collocator-designated equipment is dedicated to a specific collocator and available only for the services subscribed to by that customer. Therefore, Bell Atlantic recovers the costs of installing collocation equipment when the cost is incurred -- the time of installation -- to ensure full cost recovery in the event the collocator cancels service prematurely or its utilization is lower than originally estimated.

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<sup>2</sup> The EF&I factor is an average of the installation and engineering expenses associated with various types of circuit equipment relative to the base investment amount.

<sup>3</sup> The equipment installation cost is based on vendor estimates. Collocators are free to negotiate directly with any of the more than 25 Bell Atlantic-approved vendors in lieu of paying the tariffed rate.

### **Information Requirement: Charges for Cable Installation and Cable Support**

*(a) LECs must specify whether their virtual collocation cable installation charges recover costs associated with labor, cabling support structures, testing equipment, and engineering. LECs must discuss whether they recover the same types of costs in the rates for their comparable DS1 and DS3 services, and explain any differences. In addition, these LECs must explain any differences between their recovery of cable installation costs in their virtual collocation rates and their recovery of cable installation costs in their rates for their comparable DS1 and DS3 services.*

Bell Atlantic's Cable Installation Fee recovers the technicians' labor expense for pulling a cable dedicated to a collocator into the central office and splicing it to the collocation equipment. As discussed below, these specific functions are not conducted in connection with comparable access services and, therefore, are not separately identified in the costs for those services.<sup>4</sup> Each new collocation arrangement requires the installation of a separate cable dedicated to a single collocator. By contrast, an entrance cable used to provide comparable access services need not be installed for each separate DS1 and DS3 service. Instead, the cables are typically already in place and are used and re-used for a multitude of Bell Atlantic services and customers. It should be noted that the Cable Installation Fee for collocation is per cable, not per cross connect, and that a cable is capable of serving an entire collocation arrangement with multiple pieces of equipment over the life of the arrangement with no additional charges for that cable installation.<sup>5</sup> The up-front cable installation costs, when amortized over a five-year period and spread over 100 DS1 cross connects, are equivalent to an \$0.11 recurring cost per DS1 cross connect. Accordingly, it is appropriate to recover these cable installation costs from collocators.

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<sup>4</sup> There are no applicable tariff sections because there are no equivalent charges for comparable services.

<sup>5</sup> The size and the capability of the cable is determined by the collocator.

### **Information Requirement: Provisioning Charges**

*(a) LECs must compare their virtual collocation provisioning charges with any provisioning charges they impose on customers of their comparable DS1 and DS3 services. If the virtual collocation provisioning charges exceed those imposed on customers of the LECs' comparable DS1 and DS3 services, the LECs must justify the additional charges assessed for virtual collocation service.*

Collocation arrangements are individually-tailored service configurations developed in conjunction with the collocator. Each one requires intensive design and planning work specifically incurred to meet the collocator's unique needs. The cost of that work is recovered through the Design and Planning Fee. Activities such as project coordination -- which recovers the expenses of initiating and managing the design and planning process for each individual collocation request<sup>6</sup> -- and network operations coordination -- which evaluates the additional operational requirements that will result from the introduction of a collocation arrangement -- are required only for collocation and are appropriately recovered only from collocators.<sup>7</sup> Comparable interstate access services, on the other hand, are standardized and provided in a uniform manner. Therefore, collocation arrangements, which are customer-specific projects for which Bell Atlantic incurs high service-specific expenses, are appropriately assessed a Design and Planning Fee to cover the additional expenses.

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<sup>6</sup> In addition, Bell Atlantic develops the plans for the proposed collocation arrangement in face-to-face meetings with the collocator.

<sup>7</sup> Bell Atlantic does incur product coordination and operational expenses for both comparable access services and collocation services and these expenses are recovered through the administration factors. However, the Design and Planning Fee recovers those costs that are in addition to standard provisioning activities.

***(b) LECs must specify whether they recover provisioning costs associated with their comparable DS1 and DS3 services through overhead loadings or through direct assignment to particular rate elements.***

As stated above, Bell Atlantic recovers the incremental costs of planning for a collocator's dedicated arrangement through the Design and Planning Fee. There are no equivalent functions for comparable access services so there is no equivalent cost recovery mechanism. Standard provisioning-type expenses are recovered for both comparable access and collocation services through the application of operating expense annual cost factors applied to access investment and the comparable collocation surrogate investment.

**Information Requirement: Charges for Power to Interconnector-Designated Equipment**

***(a) The LECs that recover the costs of providing power to interconnector-designated equipment in their rates for virtual collocation service must identify and describe the particular power costs recovered in each nonrecurring and recurring virtual collocation rate elements. LECs must specify whether they recover these power costs through overhead loadings and/or through direct assignment to particular virtual collocation rate elements.***

Bell Atlantic recovers the costs of providing power to collocation equipment and standard Bell Atlantic equipment used for comparable access services in a similar manner because, on a unit for unit basis, they consume equivalent amounts of power. A power loading factor is applied to the surrogate collocation equipment investment to recover the appropriate share of investment in back-up diesel generators and batteries, transformers that convert commercial AC power to the DC power that is required to run the equipment, and safety equipment such as fuse panels and alarms.<sup>8</sup>

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<sup>8</sup> The costs contained in the September 1, 1994 filing actually understate the costs of providing power to collocation equipment because the capital cost factors were zeroed

***(b) LECs required to respond to (a) above, must explain whether they recover power costs in their rates for comparable DS1 and DS3 services. If so, the LECs must specify whether they recover these costs through overhead loadings or through direct assignment to the rate element.***

Bell Atlantic recovers the power costs for comparable services by applying a power loading factor to the investment for Bell Atlantic's equipment. Equivalent power loading factors, which recover the costs of the back-up generators and batteries, transformers, and safety equipment, are used for both collocation and access services.

#### **Information Requirement: Cost of Money Factors**

***The Bureau requires the LECs subject to this investigation to provide the cost of money factor used for their virtual collocation services and for the comparable DS1 and DS3 services with the lowest overhead loadings. The LECs must justify any differences in these cost of money factors. The LECs must include the interest rate, depreciable life, and time period (in years) for computing the present discounted value.***

The following inputs were used to develop the cost of money factors for both collocation and comparable access services: interest rate of 12.8% (based upon Bell Atlantic's weighted cost of capital), depreciable life of 13 years for the circuit equipment account, and the time period (planning period) for computing the present discounted value is five years. As Bell Atlantic pointed out previously, the cost of money factors used for collocation and standard access services are essentially equivalent.<sup>9</sup> For example, the Pennsylvania cost of money factor for circuit equipment used for collocation is 0.0903 and

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out for collocation equipment, which eliminated the recovery mechanism for Bell Atlantic's capital investment in power-related equipment. Only the on-going costs of maintaining the power equipment are included. This will be corrected in a subsequent filing.

<sup>9</sup> See Bell Atlantic's Reply to Opposition to Transmittal No. 692 (October 31, 1994).

the factor used for DS3 channel terminations is 0.0953. This difference is due to the timing assumptions used in the different cost studies.

#### **Information Requirement: Charges for Training**

*(a) Several LECs charge an averaged per diem charge for training expenses. These LECs must comment on whether it is reasonable to establish a generally available averaged per diem charge for travel expenses that would include: food, lodging, transportation, training seminar costs, and technician wages. These LECs must also discuss whether it is reasonable to develop a nonrecurring charge that recovers these travel expenses.*

Training expenses of any type are only incurred when a collocator selects equipment that is not in use in the central office where the collocation arrangement will be located. Bell Atlantic's experience with implementing collocation arrangements has been that most collocators select comparable equipment, and, therefore, the majority of collocation arrangements have not incurred training expenses.

Bell Atlantic has a tariffed *per diem* charge for lodging and meals but does not have one for transportation,<sup>10</sup> training seminars,<sup>11</sup> or technicians wages.<sup>12</sup> Bell Atlantic chose to have a *per diem* rate for lodging and meals because these are the most predictable of the training cost components. Bell Atlantic submitted its lodging and meals rate

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<sup>10</sup> Transportation costs are passed through directly to the collocator if Bell Atlantic makes the arrangements. If the collocator makes the arrangements, Bell Atlantic would not be involved in the transaction at all.

<sup>11</sup> It is the responsibility of the collocator to arrange and pay for tuition, instructor-related expenses, and course-related material.

<sup>12</sup> Wages are assessed at the standard labor rates used for all other time and material expenditures. Wages have recently been included in Section 19 of the tariff, but prior to that they were found in Section 13.



element on a *per diem* rather than a nonrecurring basis because a flat charge would require an assumption on the length of the course. However, class length can vary from two days to one week, and a *per diem* charge allows the charges to reflect more closely the actual lodging and meals cost for a particular training course.

***(b) A number of LECs charge training expenses to interconnectors based directly in ticket stubs and other receipts. These LECs must comment on whether this direct "pass through" to interconnectors is reasonable and whether it is reasonable to permit interconnectors to pay third parties directly for airline and other training expenses.***

Bell Atlantic "passes through" the transportation expenses incurred by its technicians in the course of attending equipment training if Bell Atlantic arranges for the transportation. This assures that collocators are charged no more or less than the actual transportation costs.<sup>13</sup> This method of cost recovery was selected because of the extreme variability of transportation requirements. However, the collocators have two options available to them to avoid transportation expenses. The first option is to select collocation equipment that is comparable with Bell Atlantic's equipment, which is the option most collocators have selected, and the second option is to "suitcase" the training to Bell Atlantic's location. Under the second option, the collocators avoid meals, lodging, and transportation expenses for the technicians.

To address the difficulties associated with setting an averaged rate or "passing through" third-party bills, Bell Atlantic proposes that collocators that require training be responsible for arranging and directly paying for all aspects of the training. Today, Bell Atlantic requires the collocator to arrange for a course and pay for tuition, instructor-related expenses, and course-related materials. This practice could be expanded to give

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<sup>13</sup> If collocators arrange for the transportation, they pay the costs directly.

collocators direct responsibility for paying appropriate transportation and lodging and meal expenses, thereby eliminating the *per diem* charge. This proposal permits the collocator to have greater control over the training expenditures.

***(c) The LECs should comment on whether it is reasonable to tariff rate structures that will avoid double recovery of training costs if a subsequent interconnector requests the same equipment, or if the LEC subsequently acquires the interconnector-designated equipment for use in its own network.***

Collocators that have chosen different equipment recognize that they will incur training expenses by doing so. Bell Atlantic should not be obligated to arrange for a refund from one collocator to another (or from Bell Atlantic) but there is nothing to prevent the subsequent collocator from arranging for a refund of the tuition expenses from the original collocator. This issue is purely hypothetical, however, because there have been no instances of two collocators using the same equipment within the same central office.<sup>14</sup>

***(d) LECs must address whether it is reasonable to use the LECs' cost to train their technicians to service equipment used to provide the LECs' comparable DS1 and DS3 services as a guideline in developing interconnector training expenses.***

Bell Atlantic's technicians are trained to work on various types of equipment used to provide a multitude of services. Collocation requires that certain Bell Atlantic technicians be trained to work on unique equipment dedicated to a specific collocator. Therefore, it is not reasonable to assume that these costs for on-going training on numerous items of equipment for standard access services serve as a guideline for training targeted specifically to a collocator.<sup>15</sup>

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<sup>14</sup> Similar issues of administrative burden and choice exist if Bell Atlantic subsequently acquires equipment used by a collocator. This issue has not arisen in practice, however.

<sup>15</sup> This would be inconsistent with the standard costing practice of identifying costs directly attributable to a specific service whenever possible. It is possible with collocation services; it is not with access services.

### **Information Requirement: Clarification of Training Provisions**

***(a) LECs must identify any provisions in their virtual collocation tariffs describing types of equipment to which training charges do not apply because the LECs use such equipment in their own network.***

Bell Atlantic's tariff states that when collocator-designated equipment (hardware and/or software) is identical to that already in use in the central office, no additional training is required.<sup>16</sup> Equipment-specific lists are not maintained in the tariff because they vary by central office and would be quite lengthy. However, Bell Atlantic makes this information readily available on request on a central office-specific basis to collocators that intend to collocate in that office.

***(b) LECs must specify the minimum number of technicians that must be trained to maintain and repair interconnector-designated equipment in each central office, and explain why it is reasonable to train this number of technicians.***

Bell Atlantic requires that a minimum of three technicians be trained to maintain and repair the collocator-designated equipment in each central office. Three technicians are the absolute minimum required to meet the collocators' response requirements within the parameters of collective bargaining agreements. Three technicians can split the weekday shifts and rotate the weekend call duties to ensure continual coverage.

***(c) LECs must describe their policies regarding training of LEC personnel to maintain and repair interconnector-designated equipment. LECs must discuss the initial training to maintain and repair interconnector-designated equipment, and any subsequent training that is required.***

As stated above, Bell Atlantic requires that three technicians must be trained prior to the commencement of service. This training, however, is a one-time occurrence. If any of the

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<sup>16</sup> See F.C.C. Tariff No. 1, Section 19.5 (G), to be effective November 20, 1995.

trained technicians are transferred or replaced, it is the responsibility of Bell Atlantic to train the replacement on the collocator-designated equipment. However, in the event of an equipment upgrade initiated by the collocator, the collocator must provide any needed secondary training for that office according to the same terms and conditions listed above.

**Information Requirement: Use of Outside Contractors for Installation, Maintenance and Repair of Interconnector-Designated Equipment**

*(a) LECs must specify the circumstances under which they use outside contractors for installation, maintenance, or repair. In addition, LECs must describe the particular functions performed by these outside contractors.*

Bell Atlantic uses outside contractors only to install equipment. All maintenance and repair functions are performed by Bell Atlantic technicians.<sup>17</sup> The following functions are typically required when a contractor installs equipment: engineer the design of the equipment configuration, install the actual piece of equipment, cable the equipment to the interfacing equipment, and test the arrangement.

*(b) LECs must discuss whether they permit interconnectors to choose from a list of certified contractors available to install, maintain, or repair the interconnector-designated equipment. All LECs must specify how they notify interconnectors of these contractors.*

Bell Atlantic states in its tariff and customer guide that the customer has two options for the installation and engineering of collocation equipment.<sup>18</sup> The first option is to engage the services of Bell Atlantic at the tariffed Installation and Engineering rate. The second

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<sup>17</sup> In the event that there is a warranty-related or exceptionally complicated repair problem that cannot be remedied by Bell Atlantic's technicians, the equipment manufacturer may be contacted to assist with the repair, under the control and surveillance of Bell Atlantic's employees.

<sup>18</sup> See F.C.C. Tariff No. 1, Section 19.3.2 (E), to be effective November 20, 1995.

option permits the collocator to contract directly with a Bell Atlantic-approved installation vendor. The list of Bell Atlantic-approved vendors is made available to the collocator during the initial stages of preparing for a collocation arrangement.

***(c) LECs must state whether they will honor an interconnector's request that the LEC add to its list a contractor that meets the LEC's certification requirements.***

Bell Atlantic has repeatedly indicated, both in Commission filings and in conversations with collocators, that it would honor a collocator's request to add qualified vendors to the Bell Atlantic-approved vendor lists, including the collocator itself. Bell Atlantic has not received any such requests.

#### **Information Requirement: Installation, Maintenance and Repair Intervals**

***(a) LECs must explain how their installation intervals for interconnector-designated equipment comply with the Commission's requirement that, at a minimum, the LECs install interconnector-designated equipment under the same time intervals that apply to installation of comparable LEC equipment.***

Generally, there is no specific equipment that needs to be installed to fill an order for comparable access service. Therefore, there is no comparable equipment-installation interval for bench-marking the installation of collocation equipment. However, once the collocation arrangement is ready for service, the service interval guidelines referenced in Section 5 of the tariff apply to both access and collocation services.

***(b) LECs must discuss whether it would be reasonable to notify interconnectors of the LECs' specific maintenance and repair intervals by including appropriate language in their tariffs. In particular, LECs must comment on whether it would benefit interconnectors, without being unduly burdensome to LECs, to state in their tariffs: 1) the frequency with which they will perform maintenance and repair of interconnector-designated equipment; 2) the maximum response time to intermittent service outages; and 3) the restoration priorities if a LEC's wire center is inoperative.***

Bell Atlantic sets the maintenance and repair intervals for collocation services using information provided by the collocator. The process of determining an appropriate interval begins with Bell Atlantic setting a service threshold using standard equipment specifications. The collocator and Bell Atlantic then negotiate a repair response time that is based upon the collocator's requirements. These intervals are set prior to the turn-up of the collocation arrangement. Intervals may vary from collocator to collocator because of collocation equipment differences or collocators' individual preferences, therefore, it would not be appropriate to tariff a standard maintenance and repair response interval. Nor would it be appropriate to tariff a collocation service restoration plan because the only service restoration plan in place today is for national defense purposes, and a plan for collocators would give them an undue preference vis-à-vis all other non-defense customers. Bell Atlantic treats all customers equally, and collocators are no exception.

***(c) LECs must address whether they offer interconnectors the same range of service options that the LECs offer to their comparable services customers.***

Collocators may purchase the same optional features found in the switched and special access sections of Tariff F.C.C. No. 1 (Sections 6 and 7) that are available to comparable access customers. In addition, Bell Atlantic provides the same service guarantees to its collocation customers as it does its access customers. This practice is part of Bell

Atlantic's methods and procedures and is explained in the customer guide, however, it is not in the tariff.

#### **Information Requirement: LECs' Liability**

***(a) LECs must explain the policies articulated in their tariffs concerning an interconnector's right of action against the LEC for negligence, gross negligence, willful misconduct, or intentional harm.***

Bell Atlantic's virtual collocation tariff limits Bell Atlantic's liability for negligence to physical damage directly to collocater-designated equipment and facilities caused by an employee's or agent's negligence. It limits liability for service interruptions unless such damage is caused by willful conduct. In the latter event, the tariff does not limit Bell Atlantic's liability.

This provision is similar to provisions in comparable access arrangements and other tariffs and in the tariffs of the collocators themselves. Regulatory agencies, both federal and state, have long held that common carriers may limit their liability for service failures or interruptions not caused by willful misconduct, and those holdings have uniformly been upheld on appeal.<sup>19</sup> This limitation is designed to avoid potentially large damage awards which could undermine the carrier's ability to provide service or, at least, sharply increase the cost of service to insure against unlimited liability. If the Commission were to prescribe tariff provisions imposing greater liability, Bell Atlantic would need to increase its tariffed rates to defray the cost of the increased risk.

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<sup>19</sup> See, e.g., *Western Union Telegraph Company v. Esteve Brothers & Co.*, 256 U.S. 566, 571 (1921); *Primrose v. Western Union Telegraph Co.*, 154 U.S. 1 (1894); *Robert Gibb & Sons, Inc. v. Western Union Telegraph Co.*, 428 F.Supp. 140 (D.N.D. 1977).

Bell Atlantic does not, however, purport to immunize itself against consequential damages resulting from willful misconduct or intentional harm.



## **Response to Appendix C**

Attached are the requested charts, populated as directed in Appendix C of the Commission's Designation Order. The data presented in Charts 1 and 2 for DS1 and DS3 collocation services were previously submitted in the Tariff Review Plan filed with Transmittal No. 692 (September 1, 1994). The data presented in Charts 1 and 2 for the comparable access services were previously filed with Bell Atlantic's Phase I Direct Case (March 21, 1995).

The following adjustments are required to make Bell Atlantic's data conform to the Commission's charts.

- Pennsylvania's annual cost factors are used as a surrogate on Chart 1. The costs shown on Chart 2 are Bell Atlantic, not Pennsylvania-specific, costs. A listing of the annual cost factors for all jurisdictions and accounts is attached.<sup>20</sup> See Exhibit 2.
- Bell Atlantic's standard annual cost factor categories include depreciation, cost of money, income tax, maintenance, administration, and other tax. The Commission's charts do not include the other tax category and, therefore, it was added to the income tax category.
- The entrance function for comparable DS1 services uses aerial, underground, and buried cable, and poles and conduit. For purposes of the chart, the underground cable

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<sup>20</sup> The Commission requested that variations of annual cost factors among rate elements be explained. Annual cost factors are account-specific, not rate element-specific, therefore, variation among rate elements reflects differences in the accounts used for that rate element.

and conduit annual costs factors were used as a surrogate for the cable and cable support categories.

The Commission also requests information regarding the functions served by each investment component of the comparable access services. The data are included in the charts as well as in the following excerpt from Bell Atlantic's Phase I Direct Case:

The TRP "functions" were developed for interconnection services. Although channel terminations are similar in nature to cross-connections, they do not parallel all of the activities required for interconnection services. Therefore, submission of TRP functions for channel termination services should not be considered an admission that a direct correlation exists between interconnection services and channel termination services. A discussion of each TRP function as it relates to channel termination services follows:

**Provisioning Function:** This function is not applicable to channel termination services because the costs identified for interconnection services are designed to recover costs for those provisioning activities which are incremental to Bell Atlantic's standard procedures for comparable services.

**Entrance Function:** All cable and cable support facilities for channel termination services are included in this function. The cable and supporting facilities required for channel termination services connect the customer premises and the serving wire center.

**Termination Function and Maintenance and Repair Function:** Bell Atlantic combined the termination function and the maintenance and repair function for channel terminations because the equipment costs for channel terminations which should be classified as a TRP termination function cannot be separated from the operating expenses which are classified as a TRP maintenance and repair function. Bell Atlantic provides *services*, not *facilities*. Service costs include cost components to maintain and repair those offerings. Therefore, any attempt to isolate the two functions would create cost derivations that are not representative of the service provided.

**Cross-Connection Function:** This function is not applicable to channel termination services because no special connections are required between Bell Atlantic's transmission equipment and Bell Atlantic's frame. Interconnection services, however, require construction of a new route between the collocators' equipment and Bell Atlantic's frame.

**Equipment Installation Function:** The equipment installation costs are embedded in the recurring costs for comparable services. This function is not applicable for channel terminations because no direct comparison between the installation of dedicated collocator-specific equipment and Bell Atlantic network equipment can be made.

The investment components identified on the TRP serve the following functions:

**Circuit Equipment:** Circuit equipment performs the multiplexing function that converts electrical impulses into lightwave impulses and transmits them over a fiber strand. Circuit equipment also performs the reverse function of receiving the lightwave impulses and converting them into electrical circuits.

**Cable:** Cable is required to connect the circuit equipment located at the customer's premises to the circuit equipment located at the serving wire center. DS1 channel termination use a combination of aerial and underground copper and fiber facilities and DS3 channel terminations are provisioned on underground fiber alone.

**Cable Support Facilities:** These facilities include the poles and conduit required to support and encase the cable facilities described above.

**Land and Building:** The circuit equipment in the serving wire center occupies a portion of the land and building associated with that serving wire center. No land or building investment is required for the circuit equipment located at the customer premises.

**EXHIBITS**

## EQUIPMENT INSTALLATION COSTS

<b>Activity</b>	<b>Estimated Costs</b>
<b><u>Transmission / Muxing Equipment</u></b>	
Installation	\$1,717.60
Testing	\$1,542.00
Engineering	\$1,687.60
Shipping	\$170.00
<b><u>Equipment Bay</u></b>	
Installation	\$375.00
Engineering	<u>\$100.00</u>
<b>Total Equipment Installation Costs / Rates per installation of standard configuration</b>	<b>\$5,592.20</b>

ANNUAL COST FACTORS  
DS1 and DS3 Collocation Services

	Washington, D.C.				Maryland			
	357C	62C	70C	60C	357C	62C	70C	60C
	Ckt. Eqp	Cable	Land	Bldg.	Ckt. Eqp	Cable	Land	Bldg.
Depreciation	0.0961	0.1119	0.0000	0.0278	0.1142	0.0741	0.0000	0.0200
Cost of Money	0.0818	0.1007	0.1300	0.1110	0.0837	0.1037	0.1300	0.1128
Income Tax	0.0412	0.0503	0.0652	0.0558	0.0320	0.0393	0.0486	0.0420
Maintenance	0.0162	0.0153	0.0000	0.0208	0.0204	0.0073	0.0000	0.0293
Administration	0.0444	0.0444	0.0444	0.0444	0.0285	0.0285	0.0285	0.0285
Marketing	0.0031	0.0031	0.0031	0.0031	0.0020	0.0020	0.0020	0.0020
Other Tax	<u>0.0000</u>	<u>0.0000</u>	<u>0.0171</u>	<u>0.0171</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>
Total	0.2828	0.3257	0.2598	0.2800	0.2889	0.2630	0.2172	0.2427

  

	Virginia				West Virginia			
	357C	62C	70C	60C	357C	62C	70C	60C
	Ckt. Eqp	Cable	Land	Bldg.	Ckt. Eqp	Cable	Land	Bldg.
Depreciation	0.1182	0.0716	0.0000	0.0201	0.0993	0.0794	0.0000	0.0314
Cost of Money	0.0801	0.1022	0.1280	0.1108	0.0816	0.1020	0.1300	0.1108
Income Tax	0.0363	0.0461	0.0580	0.0503	0.0395	0.0492	0.0629	0.0536
Maintenance	0.0167	0.0096	0.0000	0.0180	0.0190	0.0077	0.0000	0.0168
Administration	0.0231	0.0231	0.0231	0.0231	0.0237	0.0237	0.0237	0.0237
Marketing	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
Other Tax	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0056</u>	<u>0.0056</u>	<u>0.0056</u>	<u>0.0056</u>
Total	0.2805	0.2587	0.2152	0.2284	0.2703	0.2692	0.2238	0.2435

  

	New Jersey				Pennsylvania			
	357C	62C	70C	60C	357C	62C	70C	60C
	Ckt. Eqp	Cable	Land	Bldg.	Ckt. Eqp	Cable	Land	Bldg.
Depreciation	0.0846	0.0726	0.0000	0.0329	0.1111	0.0945	0.0000	0.0231
Cost of Money	0.0940	0.1023	0.1280	0.1093	0.0903	0.1002	0.1290	0.1106
Income Tax	0.0359	0.0389	0.0488	0.0416	0.0481	0.0533	0.0687	0.0588
Maintenance	0.0173	0.0106	0.0000	0.0354	0.0493	0.0181	0.0000	0.0278
Administration	0.0270	0.0270	0.0270	0.0270	0.0297	0.0297	0.0297	0.0297
Marketing	0.0019	0.0019	0.0019	0.0019	0.0021	0.0021	0.0021	0.0021
Other Tax	<u>0.0069</u>	<u>0.0069</u>	<u>0.0069</u>	<u>0.0069</u>	<u>0.0017</u>	<u>0.0017</u>	<u>0.0112</u>	<u>0.0112</u>
Total	0.2676	0.2602	0.2126	0.2550	0.3323	0.2996	0.2407	0.2633

  

	Delaware			
	357C	62C	70C	60C
	Ckt. Eqp	Cable	Land	Bldg.
Depreciation	0.1130	0.1049	0.0000	0.0253
Cost of Money	0.0910	0.0986	0.1280	0.1098
Income Tax	0.0444	0.0480	0.0625	0.0536
Maintenance	0.0517	0.0088	0.0000	0.0187
Administration	0.0191	0.0191	0.0191	0.0191
Marketing	0.0013	0.0013	<del>0.0013</del>	0.0013
Other Tax	<u>0.0000</u>	<u>0.0071</u>	<u>0.0000</u>	<u>0.0041</u>
Total	0.3205	0.2878	0.2109	0.2319

**ANNUAL COST FACTORS**  
**DS1 and DS3 Channel Termination Services**

Wash, D.C.	1C	4C	82C	85C	845C	2C	5C	45C	257C	357C	70C	80C
	<i>Poles</i>	<i>Conduit</i>	<i>Aer. Fiber</i>	<i>Und. Fiber</i>	<i>Bur. Fiber</i>	<i>Aer. Cab.</i>	<i>Und. Cab.</i>	<i>Bur. Cab.</i>	<i>Ckt. Eqp.</i>	<i>Ckt. Eqp.</i>	<i>Land</i>	<i>Bldg.</i>
Depreciation	0.1257	0.0238	0.0603	0.0636	0.0519	0.0844	0.0712	0.0555	0.0992	0.1019	0.0000	0.0305
Cost of Money	0.1100	0.1189	0.1035	0.1027	0.1062	0.1108	0.1115	0.1136	0.0839	0.0862	0.1217	0.1216
Income Tax	0.0549	0.0583	0.0518	0.0513	0.0530	0.0553	0.0557	0.0567	0.0423	0.0435	0.0606	0.0612
Maintenance	0.0240	0.0127	0.0220	0.0134	0.0120	0.1378	0.0227	0.0693	0.0272	0.0150	0.0000	0.0219
Administration	0.0444	0.0444	0.0444	0.0444	0.0444	0.0444	0.0444	0.0444	0.0444	0.0444	0.0444	0.0444
Marketing	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
Other Tax	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>	<u>0.0171</u>	<u>0.0171</u>
Total	0.3821	0.2622	0.2851	0.2785	0.2706	0.4358	0.3086	0.3426	0.3001	0.2941	0.2471	0.2996
Maryland	1C	4C	82C	85C	845C	2C	5C	45C	257C	357C	70C	80C
	<i>Poles</i>	<i>Conduit</i>	<i>Aer. Fiber</i>	<i>Und. Fiber</i>	<i>Bur. Fiber</i>	<i>Aer. Cab.</i>	<i>Und. Cab.</i>	<i>Bur. Cab.</i>	<i>Ckt. Eqp.</i>	<i>Ckt. Eqp.</i>	<i>Land</i>	<i>Bldg.</i>
Depreciation	0.1070	0.0250	0.0560	0.0565	0.0432	0.0738	0.0652	0.0530	0.1234	0.1269	0.0000	0.0232
Cost of Money	0.1129	0.1201	0.1050	0.1045	0.1083	0.1079	0.1128	0.1147	0.0903	0.0927	0.1287	0.1296
Income Tax	0.0423	0.0451	0.0387	0.0390	0.0403	0.0421	0.0427	0.0428	0.0345	0.0355	0.0487	0.0483
Maintenance	0.0159	0.0081	0.0088	0.0085	0.0179	0.0542	0.0169	0.0490	0.0208	0.0217	0.0000	0.0314
Administration	0.0285	0.0285	0.0285	0.0285	0.0285	0.0285	0.0285	0.0285	0.0285	0.0285	0.0285	0.0285
Marketing	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Other Tax	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>	<u>0.0081</u>
Total	0.3167	0.2369	0.2451	0.2471	0.2483	0.3166	0.2762	0.2981	0.3076	0.3154	0.2160	0.2713
Virginia	1C	4C	82C	85C	845C	2C	5C	45C	257C	357C	70C	80C
	<i>Poles</i>	<i>Conduit</i>	<i>Aer. Fiber</i>	<i>Und. Fiber</i>	<i>Bur. Fiber</i>	<i>Aer. Cab.</i>	<i>Und. Cab.</i>	<i>Bur. Cab.</i>	<i>Ckt. Eqp.</i>	<i>Ckt. Eqp.</i>	<i>Land</i>	<i>Bldg.</i>
Depreciation	0.0955	0.0216	0.0688	0.0536	0.0589	0.0752	0.0583	0.0630	0.1218	0.1251	0.0000	0.0221
Cost of Money	0.1121	0.1181	0.1005	0.1022	0.1040	0.1100	0.1112	0.1112	0.0821	0.0844	0.1200	0.1214
Income Tax	0.0508	0.0535	0.0455	0.0462	0.0469	0.0498	0.0504	0.0502	0.0373	0.0383	0.0541	0.0551
Maintenance	0.0156	0.0091	0.0058	0.0069	0.0052	0.0804	0.0169	0.0457	0.0160	0.0164	0.0000	0.0183
Administration	0.0231	0.0231	0.0231	0.0231	0.0231	0.0231	0.0231	0.0231	0.0231	0.0231	0.0231	0.0231
Marketing	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
Other Tax	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>	<u>0.0045</u>
Total	0.3032	0.2315	0.2498	0.2381	0.2442	0.3246	0.2660	0.2993	0.2864	0.2934	0.2033	0.2461

ANNUAL COST FACTORS  
DS1 and DS3 Channel Termination Services

West Virginia	1C	4C	82C	85C	845C	2C	5C	45C	257C	357C	70C	60C
	<i>Poles</i>	<i>Conduit</i>	<i>Aer. Fiber</i>	<i>Und. Fiber</i>	<i>Bur. Fiber</i>	<i>Aer. Cab.</i>	<i>Und. Cab.</i>	<i>Bur. Cab.</i>	<i>Ckt. Eq.</i>	<i>Ckt. Eq.</i>	<i>Land</i>	<i>Bldg.</i>
Depreciation	0.0878	0.0254	0.0605	0.0667	0.0631	0.0659	0.0726	0.0675	0.1025	0.1053	0.0000	0.0344
Cost of Money	0.1116	0.1175	0.1030	0.1023	0.1045	0.1119	0.1113	0.1081	0.0837	0.0860	0.1217	0.1214
Income Tax	0.0553	0.0566	0.0496	0.0495	0.0504	0.0539	0.0538	0.0539	0.0405	0.0416	0.0587	0.0587
Maintenance	0.0251	0.0123	0.0106	0.0102	0.0099	0.0610	0.0297	0.0499	0.0270	0.0227	0.0000	0.0209
Administration	0.0237	0.0237	0.0237	0.0237	0.0237	0.0237	0.0237	0.0237	0.0237	0.0237	0.0237	0.0237
Marketing	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
Other Tax	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Total	0.3107	0.2427	0.2546	0.2596	0.2588	0.3236	0.2983	0.3103	0.2846	0.2865	0.2113	0.2663
New Jersey	1C	4C	82C	85C	845C	2C	5C	45C	257C	357C	70C	60C
	<i>Poles</i>	<i>Conduit</i>	<i>Aer. Fiber</i>	<i>Und. Fiber</i>	<i>Bur. Fiber</i>	<i>Aer. Cab.</i>	<i>Und. Cab.</i>	<i>Bur. Cab.</i>	<i>Ckt. Eq.</i>	<i>Ckt. Eq.</i>	<i>Land</i>	<i>Bldg.</i>
Depreciation	0.1069	0.0218	0.0483	0.0656	0.0497	0.0644	0.0568	0.0565	0.0874	0.0896	0.0000	0.0360
Cost of Money	0.1109	0.1191	0.1036	0.1006	0.1057	0.1113	0.1115	0.1125	0.0967	0.0994	0.1199	0.1196
Income Tax	0.0422	0.0453	0.0395	0.0384	0.0402	0.0424	0.0426	0.0429	0.0369	0.0379	0.0456	0.0455
Maintenance	0.0180	0.0153	0.0124	0.0056	0.0109	0.0956	0.0283	0.0591	0.0285	0.0190	0.0000	0.0367
Administration	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270
Marketing	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
Other Tax	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069
Total	0.3138	0.2373	0.2396	0.2460	0.2423	0.3495	0.2750	0.3068	0.2853	0.2819	0.2013	0.2756
Pennsylvania	1C	4C	82C	85C	845C	2C	5C	45C	257C	357C	70C	60C
	<i>Poles</i>	<i>Conduit</i>	<i>Aer. Fiber</i>	<i>Und. Fiber</i>	<i>Bur. Fiber</i>	<i>Aer. Cab.</i>	<i>Und. Cab.</i>	<i>Bur. Cab.</i>	<i>Ckt. Eq.</i>	<i>Ckt. Eq.</i>	<i>Land</i>	<i>Bldg.</i>
Depreciation	0.1049	0.0274	0.0604	0.0486	0.0447	0.0800	0.0605	0.0597	0.1146	0.1178	0.0000	0.0254
Cost of Money	0.1118	0.1177	0.1022	0.1030	0.1063	0.1077	0.1113	0.1182	0.0928	0.0953	0.1208	0.1212
Income Tax	0.0595	0.0626	0.0546	0.0548	0.0567	0.0588	0.0596	0.0630	0.0494	0.0508	0.0642	0.0645
Maintenance	0.0182	0.0123	0.0127	0.0103	0.0103	0.0561	0.0237	0.0643	0.0185	0.0521	0.0000	0.0315
Administration	0.0297	0.0297	0.0297	0.0297	0.0297	0.0297	0.0297	0.0297	0.0297	0.0297	0.0297	0.0297
Marketing	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Other Tax	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0112	0.0112
Total	0.3279	0.2535	0.2634	0.2502	0.2515	0.3361	0.2866	0.3387	0.3088	0.3495	0.2280	0.2856



**ANNUAL COST FACTORS**  
**DS1 and DS3 Channel Termination Services**

<b>Delaware</b>	<b>1C</b>	<b>4C</b>	<b>82C</b>	<b>85C</b>	<b>845C</b>	<b>2C</b>	<b>5C</b>	<b>45C</b>	<b>257C</b>	<b>357C</b>	<b>70C</b>	<b>80C</b>
	<i>Poles</i>	<i>Conduit</i>	<i>Aer. Fiber</i>	<i>Und. Fiber</i>	<i>Bur. Fiber</i>	<i>Aer. Cab.</i>	<i>Und. Cab.</i>	<i>Bur. Cab.</i>	<i>Ckt. Eqp.</i>	<i>Ckt. Eqp.</i>	<i>Land</i>	<i>Bldg.</i>
Depreciation	0.1273	0.0317	0.0793	0.0502	0.0466	0.0865	0.0563	0.0567	0.1162	0.1194	0.0000	0.0278
Cost of Money	0.1056	0.1168	0.0987	0.1026	0.1057	0.1089	0.1114	0.1122	0.0936	0.0982	0.1200	0.1202
Income Tax	0.0514	0.0571	0.0488	0.0505	0.0515	0.0531	0.0549	0.0546	0.0456	0.0468	0.0584	0.0587
Maintenance	0.0212	0.0101	0.0164	0.0065	0.0331	0.0115	0.0164	0.0384	0.0077	0.0462	0.0000	0.0188
Administration	0.0191	0.0191	0.0191	0.0191	0.0191	0.0191	0.0191	0.0191	0.0191	0.0191	0.0191	0.0191
Marketing	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Other Tax	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0000	0.0041
<b>Total</b>	<b>0.3300</b>	<b>0.2402</b>	<b>0.2677</b>	<b>0.2343</b>	<b>0.2614</b>	<b>0.2845</b>	<b>0.2635</b>	<b>0.2664</b>	<b>0.2676</b>	<b>0.3331</b>	<b>0.1988</b>	<b>0.2500</b>